***Press* Release**

The Meteorological Office

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Chernobyl prompts breakthrough in pollution prediction

A system developed to plot the path of nuclear emissions following the Chernobyl disaster will soon enable environmentalists to monitor air pollution levels across the UK and Europe more effectively.

The NAME system was first developed by The Met. Office after the meltdown of the Ukrainian reactor in 1986. Now, after on-going research amounting to 50 years worth of work, the system takes pollution emissions data from across the continent, compiled on behalf of the Department of the Environment, Transport and the Regions, and, for the first time, applies it to a computerised model that predicts future weather patterns.

The aim of the system is to enable local authorities, industry and the general public to prepare for increases in levels of pollutants such as carbon monoxide, nitrous oxides and sulphur dioxide. It also predicts levels of particulate matter (PM10) that forms in the atmosphere under certain meteorological conditions.

The system, which took 50 research years to develop, takes into account changes in weather conditions such as rainfall, wind speed and direction and turbulence and assesses the effect that these conditions will have on air quality down to a level of a few kilometres. It also considers chemical changes brought about by weather and their potential effect on pollutants, for example the transformation of sulphur dioxide (SO_2) to sulphates (SO_4) which is determined by humidity, temperature and sunlight. Once the second stage of the research is complete the model will incorporate over 60 other chemical reactions including the development of ozone.

Factors such as variations in traffic flow and fluctuations in the power supply demand are also brought into the equation. These elements are fed into the system to forecast the most accurate picture of pollution according to the day of the week and the time of year.

The data will be delivered to local authorities via e-mail to allow air quality warnings to be issued as rapidly as possible to the local media in potential pollution 'hot spots'. There will be a customised internet web site showing pollution levels throughout the area, with links to public transport information timetables, and other useful environmental information.

The aim is that these warnings will persuade industry to curb industrial processes that contribute to pollution at times of poor air quality. The information can also be used to promote sustainable methods of transport and encourage people to travel by public transport.

According to Karl Kitchen, Senior Environment Manager at The Met. Office, the NAME system has enormous potential for ensuring that pollution is kept at a safe level: "We have been working on this system since 1986 when the Chernobyl meltdown sent a cloud of radioactive material over Europe in order to be prepared for similar incidents. We soon realised that the model could have applications in forecasting everyday variations in air pollution levels.

"Since then we have been working alongside Hampshire County Council and Leicester City Council to develop a system that takes into account all the factors that can influence air quality. Our ultimate aim is that this information will actually influence behaviour - encouraging people to use alternative means of transport and persuading industry to take measures to ensure it doesn't contribute further to pollution levels."

As well as nuclear or industrial accidents NAME will also hopefully be used to respond to other emergency incidents. For example, the path of the smoke and debris caused by forest fires, such as those witnessed in South East Asia last year, can be plotted using the system, enabling emergency services to react by sending medical teams with breathing apparatus to the worst affected areas.

The Met.Office will be hosting a seminar for local authorities in February 2000 to inform them of the new forecast service.

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